A Brief Measure of the International Classification of Diseases-11 Adjustment Disorder: Investigation of Psychometric Properties in an Adult Help-Seeking Sample

Kazlauskas, Evaldas ; Gegieckaite, Goda ; Eimontas, Jonas ; Zelviene, Paulina ; Maercker, Andreas

Abstract: Adjustment disorder is one of the most prevalent mental disorders. However, there are almost no measures available for its assessment. We aimed to analyze the psychometric properties of a brief version of the International Classification of Diseases (ICD)-11 adjustment disorder scale (Adjustment Disorder New Module-8; ADNM-8) in a help-seeking sample. Data from 1,174 participants with an average age of 35 years who registered for the internet-based self-help adjustment disorder intervention were analyzed. Psychometric properties of the brief 8-item self-report (ADNM-8) scale measuring the 2 core adjustment disorder symptoms of preoccupation and failure to adapt were tested. Confirmatory factor analysis (CFA) was applied for the analysis of construct validity. CFA supported the 2-factor structure of ADNM-8. Further research is needed for validation of ADNM-8 in cross-cultural studies.

DOI: https://doi.org/10.1159/000484415

Original Paper

Psychopathology

Psychopathology
DOI: 10.1159/000484415

Received: July 6, 2017
Accepted after revision: October 15, 2017
Published online: January 5, 2018

A Brief Measure of the International Classification of Diseases-11 Adjustment Disorder: Investigation of Psychometric Properties in an Adult Help-Seeking Sample

Evaldas Kazlauskas[a] Goda Gegieckaite[a] Jonas Eimontas[a] Paulina Zelviene[a] Andreas Maercker[b]

[a]Department of Clinical and Organizational Psychology, Vilnius University, Vilnius, Lithuania;
[b]Division of Psychopathology and Clinical Intervention, University of Zurich, Zurich, Switzerland

Keywords
International Classification of Diseases · Validity · Adjustment disorder · Assessment · Stress

Abstract
Adjustment disorder is one of the most prevalent mental disorders. However, there are almost no measures available for its assessment. We aimed to analyze the psychometric properties of a brief version of the International Classification of Diseases (ICD)-11 adjustment disorder scale (Adjustment Disorder New Module-8; ADNM-8) in a help-seeking sample. Data from 1,174 participants with an average age of 35 years who registered for the internet-based self-help adjustment disorder intervention were analyzed. Psychometric properties of the brief 8-item self-report (ADNM-8) scale measuring the 2 core adjustment disorder symptoms of preoccupation and failure to adapt were tested. Confirmatory factor analysis (CFA) was applied for the analysis of construct validity. CFA supported the 2-factor structure of ADNM-8. Further research is needed for validation of ADNM-8 in cross-cultural studies.

Introduction

Adjustment disorder (AjD) is one of the most prevalent and commonly diagnosed mental disorders [1–3]. However, the definition of AjD in the Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 [4] and the International Classification of Diseases (ICD)-10 [5] has caused difficulties to clinicians as the current diagnostic classifications do not provide a list of symptoms for the diagnosis of AjD [6, 7]. AjD is mostly diagnosed as an alternative diagnosis based on an exclusion criteria when the patient does not meet the full diagnostic criteria for depression, anxiety disorder, or other mental disorders. While AjD is often viewed as a lower level of psychopathology in comparison to other mental disorders, it is a significant clinical condition associated with considerable functional impairment and a high-suicide risk [8]. The vague definition of AjD is reflected in the lack of AjD diagnostic measures [6, 9]. AjD is often diagnosed using depression or anxiety assessment instruments, and widely used diagnostic interview assessments of mental disorders, e.g., the Composite International Diagnostic Interview (CIDI), do not include an AjD assessment module [10].

KARGER

E-Mail karger@karger.com
www.karger.com/psp

Evaldas Kazlauskas
Department of Clinical and Organizational Psychology
Vilnius University, Universiteto St. 9
LT–01513 Vilnius (Lithuania)
E-Mail evaldas.kazlauskas@fsf.vu.lt

Debates about the controversies in the use and definition of AjD have been raised over the past decade [9, 11, 12]. A significant advancement in the field of AjD research was the proposal by the WHO Working Group for Disorders Specifically Associated with Stress to revise the definition of AjD for the 11th edition of the ICD by proposing positive symptoms of AjD [13]. Two core symptoms of AjD were proposed: (1) preoccupation with a stressor, and (2) failure to adapt. With these new proposals, the need for the new assessment measures for AjD became apparent, and the theoretical background for the development of the instrument was provided.

The initial attempt to develop a specific AjD diagnostic measure was made by Maercker et al. [9] with the introduction of the Adjustment Disorder New Module (ADNM). The ADNM item formulation was based on the proposal to update the definition of AjD prior to the ICD-11 proposals. The ADNM included 3 core symptoms of AjD: intrusions, avoidance, and failure to adapt. In addition, items covering DSM subtypes of AjD were included, such as depression, anxiety, and impulsivity. The first part of the ADNM included stressor life events, and the second part consisted of 29 symptom items. The ADNM was tested in several samples: patients with an implantable cardioverter defibrillator [9]; an elderly Swiss population sample aged between 65 and 96 years [14]; 2 samples of 687 patients with cardiac arrhythmias, and 86 patients from a psychosomatic outpatient clinic [15]. The ADNM-29 had good psychometric properties with internal consistencies for the subscales of α between 0.74 and 0.91, and a 6-week retest *r* ranging from 0.61 to 0.84 for subscales [15].

After publication of the proposals of the new AjD definition for the ICD-11 [13], the ADNM was applied for validation of the newly proposed concept of AjD. The revised version of the 20-item ADNM scale was used in confirmatory factor analysis (CFA) of the ICD-11-based AjD structure in a large German general population sample (n = 2,512) [7]. In that study, 2 ICD-11 core symptoms of the AjD were identified, namely preoccupation (formerly intrusion) and failure to adapt, dropping the avoidance symptoms which were included in the initial studies. The ADNM-20 was used in a recent study that aimed to analyze the validity of the ICD-11 AjD definition in a Lithuanian general population sample (n = 831) [16]. The CFA supported the 2-factor structure of AjD with preoccupation and failure to adapt symptom groups [16].

Taking its high prevalence in clinical practice into consideration, the need for diagnostic measures for AjD is evident. We aimed to test psychometric properties of the shorter revision of the ADNM-20 instrument, which included 8 items measuring core AjD symptoms (ADNM-8), involving 4 items measuring preoccupation, and 4 items for measuring failure to adapt. This revision was based on the recent study that supported the 2-factor structure of the ICD-11 AjD definition [16]. We tested the psychometric properties of the ADNM-8 in the help-seeking sample that registered for the internet-based intervention for AjD in Lithuania [17].

Methods

Participants and Procedures

The study was approved by the Institutional Psychological Research Ethics Committee. Data were collected online, and all participants provided informed consent for the online study. Data for this study were extracted from a database of registered users of the internet-based self-help intervention for AjD (BADI) [17]. BADI is a short-term, self-help, stress-management program based on the principles of cognitive behavioral therapy and mindfulness. All participants were self-referred following advertisements in the media, and completed the baseline assessments in order to gain access to the program. Baseline assessments prior to randomization to the intervention were used in this study. The inclusion criteria for our study were: (1) age ≥18 years, (2) fully completed assessments, and (3) report of at least 1 stressful experience in the last 2 years.

A total of 1,174 participants, consisting of 958 women (81.6%) and 216 men (18.4%), were included in the data analysis of this study. Participant age ranged from 18 to 76 years, with a mean age of 34.85 (SD 11.46). The majority of the participants were from urban areas (83.0%), 7.3% were from rural areas, and 9.6% were living abroad. The majority of the participants (71.3%) had a university education.

Measures

We used the brief ADNM-8 version for AjD symptom measures. The ADNM-8 is a revision of the ADNM-20, which was previously used in several studies involving AjD assessments [16, 18, 19]. The ADNM-8 is based on the WHO Working Group for Disorders Associated with Stress proposals for ICD-11 AjD diagnosis [13] and recent validation of AjD in the general population [16]. The main difference between the ADNM-20 and the shorter ADNM-8 version is that only the 8 items measuring the core AjD symptoms of preoccupation and failure to adapt are included in the latter, concise version. The first part of ADNM-8 comprises a list of 17 life stressors. Participants were asked to indicate which from the list they recognized as a significant stressor during the last 2 years. The second part comprised 8 items measuring the core AjD symptoms over the last 2 weeks. Four items measure rumination with the stressor(s) and constitute the ADNM-8 preoccupation subscale. Four items measuring adjustment difficulties, including sleep problems, and difficulties in concentrating constitute the ADNM-8 failure to adapt subscale. The ADNM-8 items are listed in Table 1. Each item is scored on a 4-point Likert-type

Table 1. Means, standard deviations, and correlations between WHO-5 and ADNM-8 items and subscales (n = 1,174)

No.	ADNM-8	Mean	SD	Correlations			
				1	2	3	4
1	ADNM-8 subscale: preoccupation	13.73	2.32	–	0.53***	0.86***	–0.35***
	Item 1: I have to think about the stressful situation repeatedly	3.56	0.64	0.76***	0.36***	0.63***	–0.28***
	Item 2: I have to think about the stressful situation a lot and this is a great burden to me	3.41	0.69	0.84***	0.45***	0.72***	–0.29***
	Item 4: I constantly get memories of the stressful situation and can't do anything to stop them	3.34	0.76	0.84***	0.48***	0.74***	–0.29***
	Item 5: My thoughts often revolve around anything related to the stressful situation	3.42	0.71	0.82***	0.43***	0.70***	–0.31***
2	ADNM-8 subscale: failure to adapt	12.59	2.50	0.53***	–	0.88***	–0.43***
	Item 3: Since the stressful situation, I find it difficult to concentrate on certain things	3.37	0.75	0.41***	0.68***	0.62***	–0.28***
	Item 6: Since the stressful situation, I don't like going to work or carrying out necessary tasks in everyday life	3.02	0.93	0.34***	0.75***	0.63***	–0.33***
	Item 7: Since the stressful situation, I can no longer sleep properly	2.92	0.93	0.35***	0.74***	0.63***	–0.30***
	Item 8: Overall, the stressful situation affected me strongly in my personal relationships, my leisure activities, or in other important areas of life	3.28	0.80	0.47***	0.69***	0.67***	–0.33***
3	ADNM-8 total	26.32	4.23	0.86***	0.88***	–	–0.45***
4	WHO-5	37.99	16.69	–	–	–	–

*** $p < 0.001$.

scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often). The score of the total ADNM-8 is the sum of responses to all of the items. The score of the subscales is the sum of the subscale items. The ADNM was translated into Lithuanian using the back-translation procedure; the same formulation of items was used in a previous study in Lithuania [16].

The WHO-5 Well-Being Index (WHO-5) [20] is a short questionnaire developed by the WHO to measure psychological well-being. The questionnaire consists of 5 items evaluating the positive aspects of mental health and is largely based on the WHO definition of mental health. WHO-5 has been translated into at least 30 languages and is widely used in mental health research worldwide [21]. Participants are asked to indicate how well each of the 5 statements reflect his or her state in the preceding 2 weeks. Each item is scored from 0 (at no time) to 5 (all the time). The sum of all 5 items is a raw score with a range from 0 to 25. The raw score is multiplied by 4 following the WHO recommendation. The standardized score of WHO-5 is a 100-point scale with a range from 0 (the worst possible well-being) to 100 (the best possible well-being) [20]. The reliability of the WHO-5 measured with Cronbach alpha in our sample was $\alpha = 0.82$.

Data Analysis

Data were analyzed with IBM SPSS Statistics version 23. The factor structure of ADNM-8 was analyzed using a CFA with maximum likelihood estimation using the IBM AMOS 23.0.0 software. Because of the large sample size (greater than 1,000) we used the χ^2 test for model fit analysis. The model fit was tested with 2 goodness-of-fit indexes: (1) the comparative fit index (CFI) ≥0.90, and (2) the root mean square error of approximation (RMSEA) ≤0.08 [22].

Results

Prevalence of Stressors in the Sample

Participants of the study had experienced on average 3.98 (SD 1.86) significant life stressors in the preceding 2 years, ranging from 1 to 11 stressors. The majority of participants experienced multiple life stressors. Experience of 1 stressor was reported by 7.0% (n = 82) of the participants, 2 stressors were reported by 15.0% (n = 176), 3 stressors by 22.1% (n = 259), 4 stressors by 21.4% (n = 251), and 5 or more stressors by 34.6% (n = 406). The prevalence of stressors in the sample is listed in the Table 2. The most common stressors were professional/financial and interpersonal (Table 2). There was no significant gender effect for the total number of life stressors in the sample (t (1,172) = 1.67, p = 0.096). Women experienced on average 4.03 (SD 1.86) and men 3.79 (SD 1.83) stressors. However, we found significant gender effects comparing exposure to several stressors. In comparison with men, women more often reported the death of a loved one, moving, and illness of a loved one (Table 2).

Descriptive Statistics, Reliability, and Item-Scale Correlations of ADNM-8

The mean score of the ADNM-8 total scale was 26.32 (SD 4.23) in our sample. The mean score of the 2 ADNM-8

Table 2. Prevalence of life stressors in the sample

Life stressors	Total (n = 1,174)		Men (n = 216)		Women (n = 958)		Gender effect
	n	%	n	%	n	%	χ^2
Acute stressors							
Death of loved one	160	13.6	19	8.8	141	14.7	5.25*
Divorce	284	24.2	56	25.9	228	23.8	0.43
Moving	230	19.6	32	14.8	198	20.7	3.83*
Criminal act	19	1.6	5	2.3	14	1.5	0.81
Accident	15	1.3	1	0.5	14	1.5	1.39
Retirement	13	1.1	4	1.9	9	0.9	1.34
Termination of leisure activity	95	25.1	65	30.1	230	24.0	3.47
Chronic stressors							
Financial difficulties	515	43.9	98	45.4	417	43.5	0.24
Family conflict	604	51.4	105	48.6	499	52.1	0.85
Serious illness	146	12.4	27	12.5	119	12.4	0.00
Conflict at work	413	35.2	70	32.4	343	35.8	0.89
Conflict with neighbors	61	5.2	12	5.6	49	5.1	0.07
Too much/too little work	701	59.7	129	59.7	572	59.7	0.00
Illness/care of a loved one	283	24.1	38	17.6	245	25.6	6.14*
Unemployment	170	14.5	36	16.7	134	14.0	1.02
Pressure to meet deadlines	516	44.0	91	42.1	425	44.4	0.36
Other	351	29.9	36	16.7	315	32.9	22.11**

* $p < 0.05$, ** $p < 0.01$.

subscales was 13.23 (SD 2.32) for the ADNM-8 preoccupation subscale, and 12.59 (SD 2.50) for the ADNM-8 failure to adapt subscale (Table 1). The reliability of the ADNM-8 measured with the Cronbach alpha for the total ADNM-8 scale was α = 0.83, for the preoccupation subscale was α = 0.85, and for the failure to adapt subscale was α = 0.71.

The mean of responses to all of the ADNM-8 symptom items ranged from 2.92 to 3.56. The average response to the 4 items of the preoccupation subscale ranged from 3.34 to 3.56. The average response to the 4 items of the failure to adapt subscale ranged from 2.92 to 3.37. Both subscales of the ADNM-8 correlated significantly with the total score of the ADNM-8. All 8 items correlated with the total score of the ADNM-8 significantly, and correlations ranged from r = 0.62 to 0.74 (Table 1).

CFA of the ADNM-8 Structure

The theoretical model behind the ADNM-8 was tested by the CFA. The 2-factor model with 2 latent factors (preoccupation and failure to adapt) was included in the CFA. We loaded 4 items onto both of the 2 latent factors of the AjD measure, represented by items from the brief version of the ADNM-8 (Fig. 1; Table 1).

The initial model goodness-of-fit indexes revealed a moderate model fit: χ^2 = 153.14 (df = 19), $p < 0.000$, RMSEA = 0.078 (95% CI 0.066–0.089), CFI = 0.959. After consideration of modification indices, the model was revised by adding the correlation between the 2 ADNM-8 item errors (items 1 and 2) of the preoccupation latent factor (Fig. 1). The revised model fitted the data well: χ^2 = 66.53 (df = 18), $p < 0.001$, RMSEA = 0.048 (95% CI 0.036–0.061), CFI = 0.985. The correlation between the 2 factors and factor loadings are shown in Figure 1. Preoccupation was correlated with failure to adapt (r = 0.72) and factor loadings of the items were sufficiently high, with a range from 0.56 to 0.81 in the final CFA model.

Divergent Validity with WHO-5

Correlations were significant between the WHO-5 and all of the ADNM-8 items, ADNM-8 subscales, and ADNM-8 total score. The correlation between the ADNM-8 total and WHO-5 was r = –0.45, $p < 0.001$. Preoccupation symptom correlation with WHO-5 was r = –0.35, $p < 0.001$, and failure to adapt symptom correlation with WHO-5 was r = –0.43, $p < 0.001$. ADNM-8 item correlations with the WHO-5 ranged from r = –0.28 to r = 0.45 (Table 1).

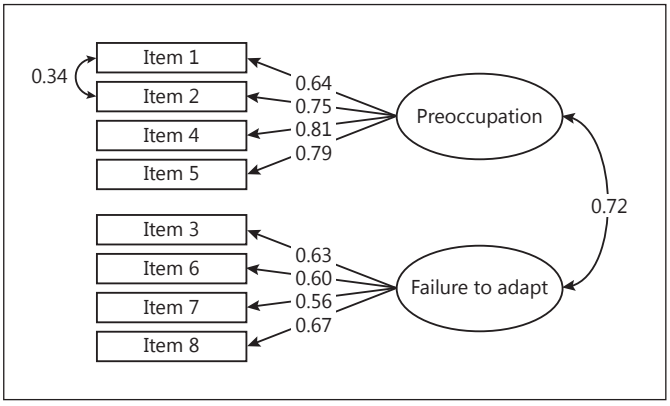

Fig. 1. Standardized solution of the 2-factor model of the ADNM-8 brief adjustment disorder module (n = 1,174). All factor loadings and correlations are significant at $p < 0.001$.

Gender and Age Effects on ADNM-8

We found a significant but small gender and age effect for the total ADNM-8 score in the sample. The correlation between ADNM-8 and age was small for the total sample ($r = 0.08$, $p = 0.006$). A 2-way between-group analysis was conducted to explore the impact of gender and age on AjD symptoms. Participants were divided into 3 groups according to their age (group 1, 18–29 years; group 2, 30–49 years; group 3, ≥50 years). The interaction effect between gender and age group was not statistically significant, ($F(2, 1{,}168) = 0.39$, $p = 0.675$), but there was a statistically significant main effect for age ($F(2, 1{,}168) = 3.27$, $p = 0.039$). However, the age effect size was small (partial $\eta^2 = 0.006$). Post hoc comparisons using the Tukey test indicated that the mean score for the 18- to 29-year age group (mean 25.98, SD 4.33) was significantly different compared to the ≥50-year age group (mean 27.06, SD 3.99). The 30- to 49-year age group (mean 26.41, SD 4.18) did not differ significantly from either of the other groups. The main effect for gender, ($F(1, 1{,}168) = 4.80$, $p = 0.029$) was significant. Women had significantly more AjD symptoms (mean 26.50, SD 4.17) in comparison to men (mean 25.54, SD 4.40); however, the gender effect on adjustment symptoms was very small (partial $\eta^2 = 0.004$).

Discussion

This is one of the first studies to explore the psychometric properties and structure of the ICD-11-based brief AjD symptoms measure (ADNM-8) in a large help-seeking sample. Our study supports the structure of the brief AjD screening measure with 2 subscales, namely, preoccupation and failure to adapt. These findings are in line with the proposals for the ICD-11 definition of AjD [13] and recent validation of the AjD diagnosis [16]. The reliability of the ADNM-8 was acceptable and similar to the full version of the ADNM-20 [18, 19].

The reliability of the ADNM-8 and subscales was good, and the factor structure was supported by the CFA analysis. There is a lack of alternative measures of AjD, and we decided to use the WHO-5 for divergent validity analysis. The use of a positive mental health measure was a novel approach in AjD studies, as other studies used anxiety and depression instruments for validation of the previous versions of the ADNM [18, 19].

The proposed brief AjD self-report measure tested in this study has its limitations. For example, brief instruments are not intended for full diagnostics. However, this is a convenient and quickly administered self-report tool for the clinician or researcher to identify a person with a potential risk for a disorder, and to aid the clinical decision to choose a more thorough assessment with a structured clinical interview if needed. Further studies are needed to identify cut-off scores of the positive AjD symptoms in various populations.

Several other limitations of our study should be considered. We did not include alternative measures for validation of the ADNM-8 for AjD, because no other specific ICD-11 AjD measures are available. The data were collected using the online assessment platform and we did not include the screening for comorbid disorders. Additional comorbidity data on anxiety or mood disorders could provide important data for the divergent validity of the ADNM-8. However, our study was a dimensional AjD study in a high-risk population, and our main aim was to test the factor structure of ADNM-8. Further studies are needed to analyze the comorbidity of AjD with other disorders.

While the sample of our study was a large, help-seeking population with self-reported stress-related adjustment problems, the participants of this study were self-referred individuals with highly diverse experiences of stressors. Further studies should focus on samples with a specific stressor exposure, clinical samples, and social risk groups to develop cut-off scores for AjD. The large proportion of women and high proportion of participants with a university education could have had a significant effect on the results. This was a cross-sectional study, and we could not report the test-retest reliability results of the ADNM-8.

Despite these limitations, the preliminary findings of our study provide important knowledge about the psychometrics of the brief ICD-11 adjustment screening measure. The ADNM-8 proved to be a reliable measure that could be used in further studies. Validation of the screening instrument for AjD in other cultures is needed to provide a valid and reliable screening instrument for clinicians and researchers.

Disclosure Statement

The authors have no conflicts of interest to declare.

References

1 Evans SC, Reed GM, Roberts MC, Esparza P, Watts AD, Correia JM, et al: Psychologists' perspectives on the diagnostic classification of mental disorders: results from the WHO-IUPsyS Global Survey. Int J Psychol 2013;48:177–193.
2 Reed GM, Mendonça Correia J, Esparza P, Saxena S, Maj M: The WPA-WHO global survey of psychiatrists' attitudes towards mental disorders classification. World Psychiatry 2011;10:118–131.
3 O'Donnell ML, Alkemade N, Creamer M, McFarlane AC, Silove D, Bryant RA, et al: A longitudinal study of adjustment disorder after trauma exposure. Am J Psychiatry 2016;173:1231–1238.
4 American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, ed 5 (DSM-5). Washington, American Psychiatric Association, 2013.
5 World Health Organization: The ICD-10 Classification of Mental and Behavioural Disorders. Geneva, WHO, 1992.
6 Casey P: Adjustment disorder: new developments. Curr Psychiatry Rep 2014;16:1–8.
7 Glaesmer H, Romppel M, Brähler E, Hinz A, Maercker A: Adjustment disorder as proposed for ICD-11: dimensionality and symptom differentiation. Psychiatry Res 2015;229:940–948.
8 Kryzhanovskaya L, Canterbury R: Suicidal behavior in patients with adjustment disorders. Crisis 2001;22:125–131.
9 Maercker A, Einsle F, Köllner V: Adjustment disorders as stress response syndromes: a new diagnostic concept and its exploration in a medical sample. Psychopathology 2007;40:135–146.
10 Kessler RC, Üstün BB: The World Mental Health (WMH) Survey Initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). Int J Methods Psychiatr Res 2004;13:93–117.
11 Carta M, Balestrieri M, Murru A, Hardoy M: Adjustment disorder: epidemiology, diagnosis and treatment. Clin Pract Epidemiol Ment Heal 2009;5:15.
12 Casey P: Adjustment disorders: fault line in the psychiatric glossary. Br J Psychiatry 2001;179:479–481.
13 Maercker A, Brewin CR, Bryant RA, Cloitre M, van Ommeren M, Jones LM, et al: Diagnosis and classification of disorders specifically associated with stress: proposals for ICD-11. World Psychiatry 2013;12:198–206.
14 Maercker A, Forstmeier S, Enzler A, Krüsi G, Hörler E, Maier C, et al: Adjustment disorders, posttraumatic stress disorder, and depressive disorders in old age: findings from a community survey. Compr Psychiatry 2008;49:113–120.
15 Einsle F, Köllner V, Dannemann S, Maercker A: Development and validation of a self-report for the assessment of adjustment disorders. Psychol Health Med 2010;15:584–595.
16 Zelviene P, Kazlauskas E, Eimontas J, Maercker A: Adjustment disorder: empirical study of a new diagnostic concept for ICD-11 in the general population in Lithuania. Eur Psychiatry 2017;40:20–25.
17 Skruibis P, Eimontas J, Dovydaitiene M, Mazulyte E, Zelviene P, Kazlauskas E: Internet-based modular program BADI for adjustment disorder: protocol of a randomized controlled trial. BMC Psychiatry 2016;16:264.
18 Lorenz L, Bachem RC, Maercker A: The adjustment disorder – new module 20 as a screening instrument: cluster analysis and cut-off values. Int J Occup Environ Med 2016;7:775–215.
19 Bachem R, Perkonigg A, Stein DJ, Maercker A: Measuring the ICD-11 adjustment disorder concept: validity and sensitivity to change of the adjustment disorder – new module questionnaire in a clinical intervention study. Int J Methods Psychiatr Res 2016, Epub ahead of print.
20 World Health Organization: WHO-Five Well-Being Index (English version). Geneva, WHO, 1998.
21 Topp CW, Østergaard SD, Søndergaard S, Bech P: The WHO-5 well-being index: a systematic review of the literature. Psychother Psychosom 2015;84:167–176.
22 Kline RB: Principles and Practice of Structural Equation Modeling, ed 3. New York, The Guilford Press, 2011.